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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,027	06/22/2005	Shigeru Tadokoro	050406	8867
23850 7590 01/16/2009 KRATZ, QUINTOS & HANSON, LLP 1420 K Street, N.W. Suite 400 WASHINGTON, DC 20005				
EXAMINER				
COHEN, JODIE				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/540,027

**Applicant(s)**

TADOKORO ET AL.

**Examiner**

Jodi Cohen

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 October 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 and 16-31 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-13 and 16-29 is/are rejected.  
7) ☒ Claim(s) 30 and 31 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

METHOD OF PRODUCING POLYURETHANE FOAM SHEET AND LAMINATED

SHEET USING SAME

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. Rejections of claims 1-29 under 35 U.S.C. 102(b) as being anticipated by Hatano et al. are maintained and repeated below for convenience.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 8-24, and 26-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Hatano et al. (US 5,527,616).

Regarding claims 1, 2, 3, 8, 9 and 10, Hatano discloses a method of producing a polyurethane adhesive laminate or layer (Col 2; lines 37-48), comprising a liquid mixture obtained by the reaction of a polyisocyanate compound and a polyol, wherein the polyisocyanate is an isocyanate-terminated polyurethane type hot-melt with a molecular weight from 1,000 to 10,0000 (Col 8; lines 49-68), the polyol has two (diol) or more active hydrogen atoms in one molecule and the ratio of a weight equivalence of isocyanate groups within said polyurethane type hot-melt to active hydrogen atom-containing groups within said polyol ranges from 1.2 to 4 (Col 7; lines 49-65).

Furthermore, Hatano discloses applying the laminate foam adhesive in numerous sheet-like manners such as by roller coating, spray coating, dip coating, electrostatic coating or extrusion coating onto a substrate or within two substrates by sandwich lamination and then introducing the polyurethane adhesive layer to water vapor in the open air, to cure or foam the mixture, (Col 13; line 46-Col14; lines 57) where the laminate can be peeled or unwound from the substrate (Examples). Hatano further discloses applying the liquid mixture in between a first and second substrate and applying a third substrate then curing the liquid mixture and peeling the laminate (Col 23; line 7-Col 24; line 39).

Regarding claims 4, 11, 16, 19, 22, and 26, Hatano discloses adding a catalyst to the polyurethane, diol hot-melt (Col 10; lines 9-25).

Regarding claims 5, 12, 17, 20, 23 and 27, Hatano discloses using a silane coupling agent with the in the polyurethane hot-melt, such as vinyl triethoxysilane which is considered a hydrolysable alkoxysilyl group (Col 10; line 40-Col 11; line 8).

Regarding claims 6, 13, 18, 21, 24, and 28, Hatano discloses that the isocyanate terminated polyurethane contains free isocyanate groups in an amount from .84 to 8.4% by weight (Col 3; lines 21-36)

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 7, 25, and 29 rejected under 35 U.S.C. 103(a) as being unpatentable over Hatano et al. (US 5,527,616).

Regarding claims 7, 25, and 29, Hatano discloses the viscosity of the polyurethane is from 500 to 4000 cps at 120 degrees Celsius, which is equal to 500 to 4000 mPa\*s at 120 degrees Celsius, however the specification of the current application discloses a viscosity of 100 to 100,000 mPa\*s at 125 degrees Celsius. It would have been obvious to one of ordinary skill in the art at the time of the invention that a 5 degree Celsius increase would not cause the viscosity of the polyurethane Hatano discloses to fall outside of the range of 100 to 100,000 mPa\*s. See also Fig 1.

***Allowable Subject Matter***

6. Claims 30-31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The primary reason claims 30-31 are allowable if rewritten is because currently the prior art does not disclose all of the limitations of claim 1 with a foaming degree in range recited in claims 30-31 nor is there currently prior art that would have made this foaming degree desirable or obvious to one of ordinary skill in the art in light of the limitations of claim 1.

***Response to Arguments***

7. Applicant's arguments filed 10/14/2008 have been fully considered but they are not persuasive.

8. Applicant's principal arguments regarding claims 1, 2, 3, 8, 9, and 10, are that Hatano does not disclose the process water foaming. Furthermore Hatano sees foaming as a problem and thus teaches away from water foaming.

9. Regarding applicants arguments, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." See MPEP 2111. Therefore the scope of independent claims 1, 2, 3, 8-10 in the present application is determined not solely on the basis of the claim language, but giving the claims their broadest reasonable construction "in light of the specification as it would be interpreted by one of ordinary skill in the art."

It is determined the limitation of "water foaming said liquid mixture by bringing said sheet-like liquid mixture into contact with water vapor" wherein the specification defines water foaming as a technique achieved "by bringing water vapor into contact with a urethane prepolymer containing isocyanate groups at the molecular terminals; thereby causing a reaction between isocyanate groups and water to generate carbon dioxide gas, which causes the foaming" (as applicant states on page 13 of the remarks filed 10/14/2008) . (See also page 7, lines 10-15 of the present application)

10. Hatano discloses a hot melt urethane polymer comprising isocyanate terminal groups and a diol with a the ratio of a weight equivalence of isocyanate groups to active hydrogen atom-containing groups within the range of 1.5 to 20.0 and then curing said polymer by with moisture in an atmosphere containing humidity (Col 14; lines 46-50) (i. e. bringing the substrate in contact with water vapor). Hatano discloses all of the limitations of the polymer with free isocyanate groups and further teaches contacting said polymer with water vapor, thus it is understood that the free isocyanate groups would inherently react with the water vapor and water foaming would occur to some degree.

In regards to Hatano seeing foaming as a problem, Hatano discloses that when the foaming due to the formation of carbonic acid gas occurs it can slow curing. Water foaming as defined in the specification of the present application and discussed above is foaming due to the formation of carbon dioxide thus the two forms of foaming are not considered comparable and one cannot deduce that Hatano teaches away from water foaming.

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jodi Cohen whose telephone number is 571-270-3966. The examiner can normally be reached on Monday-Friday 7:00am-5:00pm Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/



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Supervisory Patent Examiner, Art  
Unit 1791

/Jodi F. Cohen/  
Examiner, Art Unit 1791